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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,157	12/05/2001	Eugene Murphy O'Donnell	PU010276	4236

7590 10/01/2004
JOSEPH S. TRIPOLI
THOMSON MULTIMEDIA LICENSING INC.
2 INDEPENDENCE WAY
P.O. BOX 5312
PRINCETON, NJ 08543-5312

EXAMINER

GUHARAY, KARABI

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/007,157	Applicant(s) O'DONNELL ET AL.	
	Examiner Karabi Guharay	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

Amendment, filed on 7/12/2004 has been considered and entered. Amendment of specification is entered, but objected for minor informalities.

In the amendment of specification, "array or anodes" should be changed to "array of anodes". Appropriate correction is required.

Claim Objections

Claim 8 is objected to because of the following informalities: Claim 8 is dependent on cancelled claim 7. Appropriate correction is required.

For the purpose of examination it is assumed that claim 8 depends on claim 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-5 & 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. (US 5580142), in view of Jacobsen et al. (US 5804919), further in view of Stahl et al. (US 6661475).

Regarding claims 1 & 3, Kurematsu et al. disclose a projection type display unit (Fig 7, lines 10-12 of column 1) comprising an imager defining a plurality of controllable pixels (liquid crystal light valves 1, 2, 3, see lines 36-38 of column 5, & Fig 10) a light

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source (31, 33, and 35 of Fig 7) for exclusively generating light of a selected color (lines 40-43 of column 5), the light source arranged for transmitting light through the imager (liquid crystal light valve 1, 2, 3) to produce image (lines 45-49 of column 5) and a projection lens (6) for magnifying and focusing the image for projection on a screen (see Fig 8, lines 56-60 of column 6).

But Kurematsu et al. fail to disclose that the light source is comprised of a field emission device exciting a resonant micro-cavity anode with an active region having a phosphor disposed therein for emitting light of the selected color.

Kurematsu et al. also fails to disclose that the imager is a LCOS device. Instead, Kurematsu discloses liquid crystal light valve as an imager.

However, Stahl et al. disclose a projector system (Fig 1) for color image projection having LCOS light valve (26) and a projection lens (27) and teaches that projection display system can either use transmissive light valve or reflective type such as LCOS light valve depending on the cost, brightness and image quality goal, and further teaches that multimedia projection characteristics are achieved by using LCOS light valve.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use LCOS light valve in order to achieve multimedia projection characteristics.

Jacobsen et al. discloses a light source (RMD of Fig 15, lines 48-49 of column 20) comprising a field emission device (244) exciting a resonant micro-cavity anode (240) with an active region (active layer 236) having a phosphor (lines 10-12 of column

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6) disposed therein for emitting selected color light (lines 7-16 of column 17). Jacobsen further teaches the use of such light sources for the projection device to produce three different color light sources, since RMD light source produces high brightness and highly directional light source (lines 6-9 of column 21).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the arc lamp with filter as the light source for the projection device of Kurematsu et al., by resonant micro-cavity field emission device as disclosed by Jacobsen et al. since this type of light source eliminates use of filter to produce different color light as well as produce high brightness high directional light.

Regarding claim 4, Jacobsen et al. disclose that the field emission devices (resonant microcavity devices of Fig 13a) produces red, green and blue light (lines 32-35 of column 15). The same reason for combining art as in claim 1 applies.

Regarding claim 5, Kurematsu et al. disclose an optical combiner (a prism with dichroic films 14 and 15 of Fig 7), the optical combiner merging each of the color images to form a single image (see Fig 7).

Regarding claim 9, combined structure of Kurematsu and Jacobsen and Stahl discloses a method of displaying an image by exciting resonant microcavity for emitting color light, then projecting the light through the LCOS imager to produce an image and magnifying and focusing through the projection lens.

Regarding claim 10, Kurematsu discloses optically combining image of one selected color with the image of a second selected color distinct from the first color (see Fig 6).

Regarding claim 11, Kurematsu discloses that the colors are selected from the group consisting of red, green, and blue (lines 35-44 of column 5).

Claims 6 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsen et al. further in view of Stahl et al. (US 6661475).

Regarding claims 6 & 8, Jacobsen discloses an illumination source (Fig 15) for a projection system (lines 60-62 of column 20) comprising a vacuum cavity (242), an array of field emission display points (244) on a first side of the vacuum cavity, and resonant cavity anode (239) on a second side of the vacuum cavity for generating light of the selected color, wherein the field emission display points are electron emitters used to excite resonant microcavity anodes (239) to exclusively generate light of selected color (lines 32-35 of column 15).

Jacobsen discloses all the limitations of claims 6 & 8, except for a LCOS device and a projector lens.

However, Stahl et al. disclose a projector system (Fig 1) for color image projection having LCOS light valve (26) and a projection lens (27) using an arc lamp light source. Jacobsen discloses the advantage of using RMA devices as a light source for the projection device, instead of using arc lamp producing white light and then using filters to produce separate color light (lines 57-62 of column 20), since RMA light source produces high brightness level, moreover light is highly directional (lines 6-9 of column 21).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the arc lamp with filter as the light source for the

projection device of Stahl et al., by resonant micro-cavity field emission device as disclosed by Jacobsen et al. since this type of light source eliminates use of filter to produce different color light as well as produce high brightness high directional light.

Response to Arguments

Applicant's arguments, filed 07/12/2004 have been fully considered but they are not persuasive.

Applicant contends that Kurematsu does not disclose or suggest the use of a single color light source, and in support cited Fig 3. However, light sources 31 and 32 of Fig 3 is not a white source, while 31 and 32 are color light source (see lines 3-12 of column 3). Further Fig 7, as indicated in the office action, discloses three different light sources 31, 33, 35 each represents single color source (lines 35-44 of column 5).

However, examiner agrees that Kurematsu does not disclose LCOS imagers.

But combined structure of Kurematsu Jacobsen and Standl discloses all the claimed limitations.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

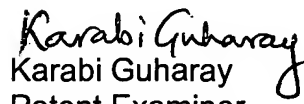
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

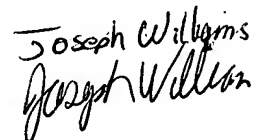
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Karabi Guharay
Patent Examiner
Art Unit 2879


Joseph Williams